UNITED STATES PATENT AND TRADEMARK OFFICE

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10/617,625	07/10/2003	Ulug Bayazit	352000-902002	4266

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>02/26/08</u>.
2a)☐ This action is **FINAL**.　　　2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>17-22 and 28-41</u> is/are pending in the application.
　　4a) Of the above claim(s) <u>1-16 and 18-27</u> is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>17-22 and 28-41</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>10 July 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
　　a)☐ All　b)☐ Some *　c)☐ None of:
　　　1.☐ Certified copies of the priority documents have been received.
　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.
　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claims 17-22, and 28-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Arvind et al. (US 5,214,507).

Re claims 17 and 36, Aravind discloses a signal coding apparatus, comprising:

a partitioning component that divides a field of data into a plurality of data groups,

macroblocks (col. 3, lines 47- 57), wherein respective ones of said plurality of data groups

further comprise a spatial data content (8x8 sub-blocks, 16x16 sub-blocks are in spatial domain);

a transform component (110 of fig. 1) that encodes respective ones of said plurality of

data groups, said data groups represented by respective transform coefficients (DCT

coefficients), and wherein respective ones of said plurality of data groups further comprise a

coding mode (PRED of fig. 1, determining coding mode);

a quantizing component (120 of fig. 1) that compresses said respective transform

coefficients representing said plurality of data groups;

a compressing component (a video coder comprises a compression component as

described in MPEG standard, wherein the compressing component produces a encoded image

that is stored in a frame buffer for transmission) that further compresses said quantized transform coefficients; and

a rate control component (105 of fig. 1) that maps each of a plurality of unique pairs of data (a prestored empirically derived model of the relationship between a predetermined plurality of perceptual noise sensitivity (PNS) classes, the psycho-visual quality levels (Q) and the values of the quantization parameter (qp)), pairs of data being characterized as a first component of particular class data (PNS) paired with a second component of particular quantization parameter data (qp, Table 1), to a unique estimate for a number of coding bits (130, 155 of fig. 1; col. 5, line 8-col. 6, line 34), wherein a value representing an actual quantity of coding bits observed for previously coded data entities is into the estimation process (BUFFER FULLNESS of fig. 1).

Re claims, 18, 28, 33, and 37, Avarind discloses wherein said features of said groups of data comprises data indicating pixel luminance intensity values and corresponding pixel chrominance intensity values (col. 3, lines 47-55).

Re claims 19, 29, 34, and 38, Avarind further discloses wherein said transform component comprises a two-dimensional orthogonal transform (DCT 110 of fig. 1).

Re claims 20, 31, 35, and 39, Avarind teaches MPEG-standard coder that would obviously comprise a run-length coder and a variable length coder.

Re claims 21, 30, and 40, Avarind teaches wherein said orthogonal transform comprises a discrete cosine transform operating on one of the intensity values of the pixels of a group of data (DCT, 110 of fig. 1), and the error of the temporal prediction from one or more temporally local groups of data (PRED of fig. 1, motion compensation performs temporal prediction errors).

Re claim 22, 32, and 41, Avarind further discloses wherein said quantizing component comprises a uniform scalar quantizer (col. 6, lines 1-15, the qp values for those PNS columns are increased until a uniform distribution of the perceived noise is achieved throughout the image)

3.   Claims 17-19, 21, and 28-30, 33-34, 36-38, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (US 6,430,222 B1).

Re claims 17 and 36. Okada teaches a signal coding apparatus (fig. 2), comprising: a partitioning component (14 of fig. 2, details in figure 3) that divides a field of data into a plurality of data groups (macroblocks) (fig. 4), wherein respective ones of said plurality of data groups further comprise a spatial data content (SPECIFIC BLOCK MAP and SPECIFIC AREA BLOCKS are in frame as a video signal in a spatial domain, so the SPECIFIC BLOCK MAP and SPECIFIC AREA BLOCKS would obviously be spatial data content);

a transform component (3 of fig. 2) that encodes respective ones of said plurality of data groups, said data groups represented by respective transform coefficients (the DCT obviously generates coefficients of the macroblocks; col. 7, lines 62-63) , and wherein respective ones of said plurality of data groups further comprise a coding mode (16 of fig. 2, coding mode determining section for determining inter and intra modes based on the macroblocks of the frame);

a quantizing component (4 of fig. 2) that compresses said respective transform coefficients representing said plurality of data groups;

a compressing component (5 of fig. 2) that further compresses said quantized transform coefficients; and

a rate control component (17 of figs. 2 and 5) that maps each of a plurality of unique

pairs of data (43 of figs. 5 and 8, as illustrated in figure 8, each of a plurality of unique pairs of

data is a specific area block map extracted by the specific area extracting section (14 of figs. 2

and 4) and initial quantization stepsize value computed by the initial stepsize computing section

(72 of fig. 8)),

pairs of data being characterized as a first component of particular class data (SPECIFIC

AREA BLOCK MAP of fig. 8) paired with a second component of particular quantization

parameter data (INTIAL QUANITZATION STEPSIZE is outputted from THE INITIAL

QUANTIZATION STEPSIZE COMPUTING SECTION, 72 of fig. 8),

to a unique estimate for a number of coding bits (73 of fig. 8, a unique estimate number

of coding bits as quantization stepsize determines the coding bits),

wherein a value representing an actual quantity of coding bits (THE CODING AMOUNT

INFORMATION from coding section 5 of figure 2) from observed for previously coded data

entities (encoded data from coding section 5 of fig. 2) is into the estimation process (17 of fig. 2).

Re claims 18, 28, 33, and 37, Okada further teaches wherein said features of said groups

of data comprises data indicating pixel luminance intensity values and corresponding pixel

chrominance intensity values (22-24 of fig.3, col. 9, lines 15-53).

Re claims 19, 29, 34, and 38, Okada further discloses wherein said transform component

comprises a two-dimensional orthogonal transform (col. 7, lines 55-66).

Re claims 21, 20, and 40. Okada further discloses wherein said orthogonal transform

comprises a discrete cosine transform operating on one of the intensity values of the pixels of a

group of data (col. 7, lines 55-64), and the error of the temporal prediction from one or more

temporally local groups of data (12 of fig. 2).

4.   Claims 20, 22, 31-32, 35, 39, and 41 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Okada (US 6,430,222 B1) in view of Cornog et al. (US 6,330,369).

Re claims 20, 22, 31-32, 35, 39, and 41, Okada further teaches wherein said compressing

component comprises a variable length coder (5 of fig. 2), and quantization stepsize.

It is noted that Okada does not particularly teach a run-length coder and a uniform scalar

quantizer.

However, Cornog teaches a run-length coder (col. 1, lines 40-43) and a uniform scalar

quantizer (fig. 3).

Taking the teachings of Okada and Cornog as a whole, it would have been obvious to

one of ordinary skill in the art to modify the run length coder and uniform scalar quantizer of

Cornog into the apparatus of Okada for limiting data rate and image quality loss in lossy

compression of sequences of digital images.

Response to Arguments

5.   Applicant's arguments filed 02/26/2008 have been fully considered but they are not

persuasive.

The applicant argues that Okada does not teach a rate control component that maps each

of a plurality of unique pairs of data, pairs of data being characterized as a first component of

particular class data paired with a second component of particular quantization parameter data, to

a unique estimate for a number of coding bits in the remarks.

The examiner respectfully disagrees with the applicant. It is submitted that Okada

teaches a rate control component (17 of figs. 2 and 5) that maps each of a plurality of unique

pairs of data (43 of figs. 5 and 8, as illustrated in figure 8, each of a plurality of unique pairs of

data is a specific area block map extracted by the specific area extracting section (14 of figs. 2

and 4) and initial quantization stepsize value computed by the initial stepsize computing section

(72 of fig. 8), as the same applicant's disclosure, pairs q and Z, quantization and macroblocks),

pairs of data being characterized as a first component of particular class data (SPECIFIC AREA

BLOCK MAP of fig. 8, as macroblocks) paired with a second component of particular

quantization parameter data (INTIAL QUANITZATION STEPSIZE is outputted from THE

INITIAL QUANTIZATION STEPSIZE COMPUTING SECTION, 72 of fig. 8, q), to a unique

estimate for a number of coding bits (73 of fig. 8, a unique estimate number of coding bits as

quantization stepsize determines the coding bits), wherein a value representing an actual quantity

of coding bits (THE CODING AMOUNT INFORMATION from coding section 5 of figure 2)

from observed for previously coded data entities (encoded data from coding section 5 of fig. 2) is

into the estimation process (17 of fig. 2). In view of the discussion above, the claimed limitation

is unpatentable over Okada.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Kim et al. (US 5,986,710) discloses an image encoding method and apparatus for

controlling the number of bits generated using quantization activities.

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Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The

examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tung Vo/
Primary Examiner, Art Unit 2621